A new charged-particle array

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A revised charged-particle array

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BACKGROUND:

Letter of Intent to ATLAS PAC January 2006:

"… the study of marginally bound nuclear states at and beyond the proton dripline is a defining frontier of current research with stable heavy-ion beams."

"Studies … are within our reach with the intense, well timed stable beams from ATLAS. The instrumentation includes Gammasphere, the FMA (mass and RDT mode), the Neutron Shell, and an efficient inner array aiming at high-resolution particle spectroscopy."

"… a concerted effort is required to make significant progress and … to achieve the high-impact physics breakthroughs …"

CONSEQUENCES:

- "$N \leq Z$ community" to define a small number of key experiments or projects.
- Each project is to ask for significant beam time.
- One joint campaign – well prepared.
- Requires support from GS and ATLAS users.

COLLABORATION (so far!):

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The charged-particle array …

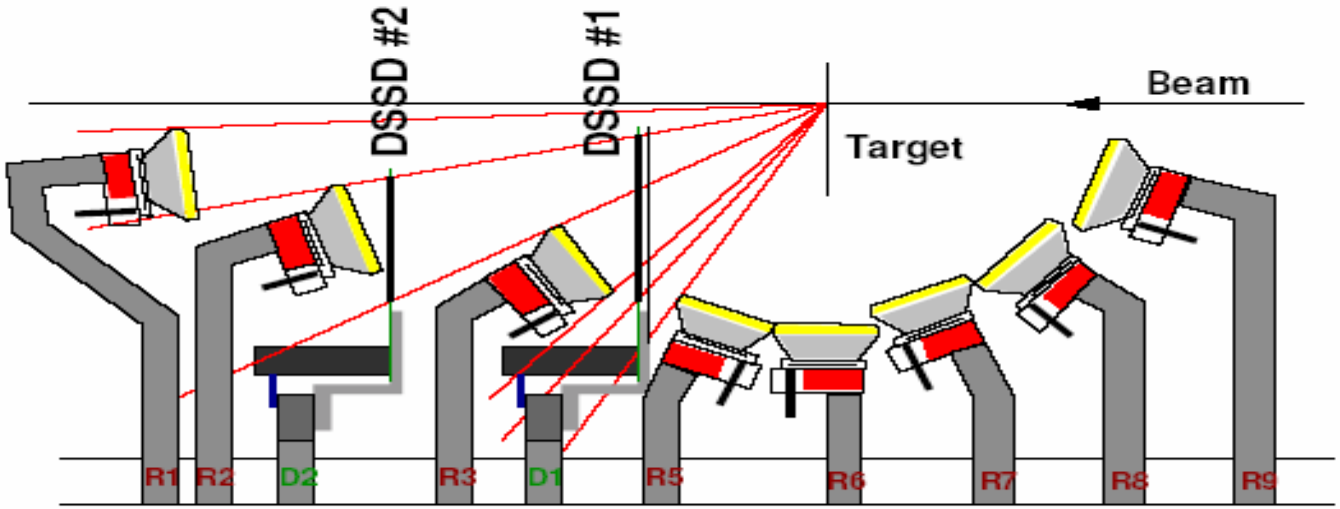
… shall remain high efficiency.

→ keep MICROBALL

… shall allow for in-beam particle spectroscopy.
Key issue: definition of kinematics!
(pixelation and recoil and beam monitoring)

→ include DSSD detectors

Next step at GAMMASPHERE:
MICROBALL plus two integrated CD–DSSD

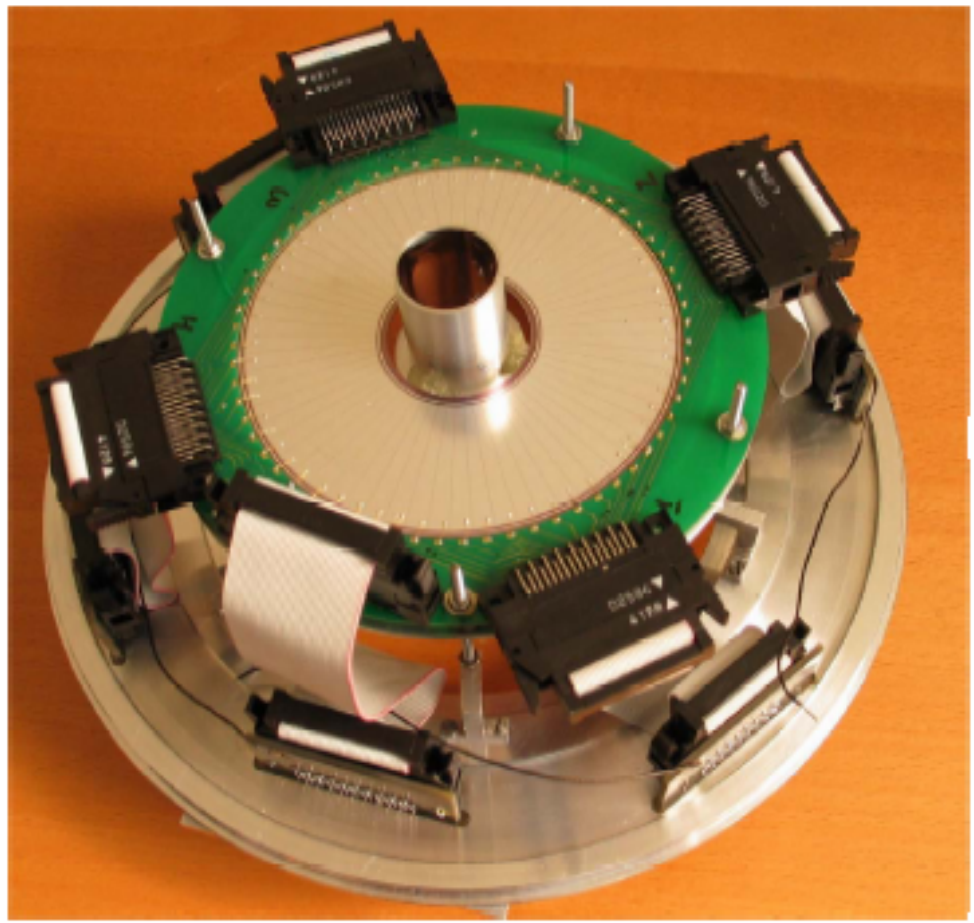


The CD-type DSSD detectors:

32 rings, 64 sectors

310μm or 520μm

active area (radius):
7mm – 43mm or
16mm – 43mm



Next step at GAMMASPHERE:
MICROBALL plus three integrated CD–DSSD